Module 11 Lesson Plan

Strategies for Rural Driving



Content <u>Essential Knowledge and Skills 22</u>

- Crash Statistics
- Rural Road Characteristics
- Time and Space Management Strategies
- Driving on Two-Lane Roads
- Driving on Multi-Lane Roads
- Passing and Being Passed
- Highway Hypnosis
- Slow Moving Vehicles
- Night Driving
- Rural Railroad Crossings
- Animals
- Assignment
- Assessment



MONTANA DRIVER EDUCATION AND TRAINING CURRICULUM GUIDE

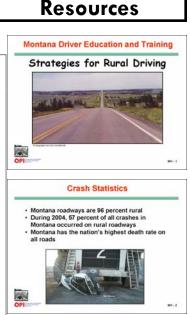


Lesson Objective: The student distinguishes how driving conditions and characteristics in rural areas are different from other driving environments and applies a time and space management system with vision control, motion control, and steering control for good driving habits within rural driving environments.

M11—Strategies for Rural Driving

Instructional Topic	Content	Slide
CRASH STATISTICS	 Introduce, model, practice and discuss Montana had the nation's highest death rate on all roads during 2004 96 percent of Montana roadways are considered rural 57 percent of all crashes in Montana occurred on rural roadways The high percentage of rural roadways in Montana may account for Montana's high fatality rate which is consistently higher than the United States fatality rate Rural crashes are more likely to be head-on collisions Rural crashes involve more vehicle rollovers, collisions with fixed objects and serious injuries It takes emergency medical services longer to reach rural crash scenes than urban crashes A federal study found that, in addition to more fatalities, there is a greater chance of severe vehicle damage in rural area crashes and of people being ejected from their cars 	T11-1 T11-2 T11-3 T11-4 T11-5
RURAL ROAD CHARACTERISTICS Narrow Width	 Introduce, model, practice and discuss Many rural roads were designed when traffic speeds were slower and modern engineering was not available Rural roads: Have fewer traffic signs, sharper curves, and steeper hills Are not as crowded as urban roads and often have high speed limits May not have advisory speed limits posted beneath curve warning signs Have fewer hazards than urban roads, but speed limits allow hazards to be reached more quickly Older rural roads may be narrow without shoulders or have uneven shoulders and poor drainage Mailboxes, signs, and trees may be closer to the edge of the roadway 	T11-6 T11-7 T11-8 T11-9



















Instructional Topic	Content	Slide
◆ Speed	 The speed limit on state highways in Montana is 70 mph U.S. 93 speed limit is 65 mph Local authorities set the speed limits on county roads - usually at 70 mph Rural interstate highway speeds are up to 75 mph for passenger vehicles and 65 mph for large trucks 	T11-10
◆ Uneven Surface	 Roadways can be paved, patched, broken, or gravel pavement resulting in inconsistent traction Potholes and roadway patches create ridges that affect vehicle balance and steering problems "Washboard" surfaces are uneven sections of unpaved roads that can cause tires to lose traction on the roadway Changing roadway surfaces can create situations where drivers could lose control of their vehicle Soft and unmarked shoulders are especially hazardous at night 	T11-11
Signs and Markings	 Rural roads have less traffic, few traffic controls and few roadway markings Some rural roads do not have roadway markings Many lack adequate crash protection devices Traffic signs may not be present 	T11-12
◆ Roadway Hazards	 Rural roads may have more hazards They are not cleaned as often as city streets Drivers will see accumulations of mud, leaves, snow and ice, sand, dirt and oil These conditions often create traction hazards Other roadway debris such as tire fragments, dead animals, collision debris, along with roadside stands or vehicles mowing or spraying the shoulders of the roadway, and mail delivery, also create hazards Snow removal may not occur after certain hours, such as midnight Piles of snow can cause Line of Sight/Path of Travel (LOS/POT) restrictions 	T11-13





Instructional Topic	Content	Slide
◆ Mud, Gravel, Dirt	 During seeding and harvest season rural roadways may have large chunks of mud in and along the side of the road Dirt and gravel can accumulate on the windows creating vision problems and/or cracked windshields Increasing following distance, adjusting lane position, and reducing speed will help prevent rocks and gravel from hitting the windshield In an area where dirt and gravel are present, mud guards/flaps on the vehicle can help protect other vehicles from flying debris Avoid debris by adjusting lane position to LP2 or 3 unless there is a LOS/POT restriction 	T11-14
◆ LOS Restrictions	 Rural roads can have many line-of-sight restrictions Tall crops planted near the edge of the roadway, overhanging trees, bushes and weeds, especially at intersections, can create LOS obstructions Fences close to the roadway edge can create large visual obstructions Hills and curves may not be marked so driving at a speed that exceeds a clear line of sight can be a risky behavior 	T11-16
◆ Reduced Lighting	 Rural roads may have low level lighting or no lighting to help drivers see the roadway Look for headlights of other vehicles approaching or crossing intersections ahead The right side of the lane may not have the painted white fog line Signs are typically retro-reflective to help drivers identify them When the headlights of a car illuminate a retro-reflective surface the reflected light is directed toward the car and its driver and is not wasted by going in all directions as with diffuse reflection 	T11-17
◆ Advisory Speed Signs	 Advisory speed limit signs are posted in advance of curves on many roads These signs provide suggested speed limits for IDEAL conditions Advisory speed signs are posted below the warning sign 250 to 700 feet before the hazard (curve or intersection) Depending on the type of vehicle driven and weather or surface conditions, slowing below the advisory speed may be required 	
TIME AND SPACE MANAGEMENT STRATEGIES	 Introduce, model, practice and discuss Note: Refer to Module 6 for details on time and space management strategies Apply space management strategies when driving in rural areas Higher speeds result in less time to: identify potential hazards, predict what will happen, decide what to do, and less time to react. 	T11-18

Resources





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Instructional Topic	Content	Slide
TIME AND SPACE MANAGEMENT STRATEGIES (Cont.)	 Use your orderly visual search pattern At highway speeds the 20-30 second visual lead will be approximately one-half to three-fourths of a mile ahead of the vehicle Separate hazards by avoiding meeting oncoming traffic at the same time another hazard occurs Adjusting speed allows a driver to deal with one hazard at a time 	
◆ Following Distance	 Maintain at least a 3-4 second or more following distance Longer following distances allow for more control when: Being tailgated Driving on a steep downhill Following a motorcycle Following a snowplow Following a tractor with equipment attached Pulling a trailer Following a large vehicle (truck, bus, or motor home) Driving on slick or gravel surfaces 	
DRIVING ON TWO-LANE ROADS	Introduce, model, practice and discuss Note: Details on driving through curves is in Module 10 Many rural roads are two lanes, often narrow, with minimal markings Many rural roadways have sharp curves Crashes often occur due to excessive speed going into a curve Control the curve by controlling speed before the curve Use the four-step approaching to cornering (see Module 10)	T11-19
◆ Rural Hills	 Hills are not usually marked unless they are very steep Be aware of slower vehicles that may have difficulty maintaining speed going up hills (examples include trucks, buses, etc.) On narrow, one-lane roads, vehicles traveling uphill have the right of way over vehicles traveling downhill 	
◆ Rural Intersections	 Intersections may be difficult to see Identifying rural intersections early can help predict potential conflicts Many rural intersections are uncontrolled The controlled intersections may have signs but not automated signals Many rural intersections only have signs; most do not have any signs or traffic controls Intersections can be hidden by bushes, crops, trees, etc. 	T11-20

Resources





Two-Lane Rural Intersections

- · Many are uncontrolled and hidden
- · Identify intersections early by looking for:
- Loose gravel in the roadway
- Electrical, telephone, or utility lines - Reflectors marking driveways
- Mailboxes may be across the road from the driveway





Instructional Topic	Content	Slide
◆ Rural Intersections (Cont.)	Rural intersections, driveways, ditch bank roads, and other farm access roads can be identified by looking for clues such as Loose gravel projecting out into the roadway Electrical, telephone, or other utility lines crossing the roadway Reflectors marking driveways Mailboxes may be across the road from a driveway	T11-21
◆ T-Intersections	 T- intersections can be on hills and/or curves making them even more dangerous because of the LOS restrictions Many rural T- intersections are not controlled The driver on the side road must yield to the driver on the main road Side roads may be difficult to see in rural areas 	
◆ Y-Intersections	 Y-Intersections are roadways that meet at odd angles Often located where a minor roadway meets a major roadway Drivers can become confused by Y-intersections traffic signs; know which sign belongs to each of the intersecting roads The driver on the left must yield to the driver on the right 	
DRIVING ON MULTI-LANE ROADS	 Introduce, model, practice and discuss Rural roads can have multi-lanes Some multi-lane roadways have two-lane roads crossing a four-lane (or more) highway Some multi-lane roadways may intersect with other multi-lane roadways Multi-lane roadways have intersections making them different from interstate highways which have on and off ramps Unless otherwise posted, drive in the right lane whenever possible Gives the best separation from oncoming traffic Some multi-lane roadways have only yellow lines separating high speed traffic 	T11-22
 Multi-lane Roadways with Center Lines 	traveling in opposite directions Never cross a double yellow line except to make a left turn or to avoid an obstacle in the lane with no on-coming traffic	
◆ Divided Roadways	Some rural roadways have divided roadways separated by guardrails or median strips A median strip is an area of ground separating opposite flows of traffic Medians can range from inches to several feet wide Drivers must yield to on-coming traffic when turning across traffic	

Resources







M11

Instructional Topic	Content	Slide
◆ Scenic Byways	 All are marked with brown signs Scenic and Historical byways are usually two-lane paved roads Backcountry Byways tend to be gravel roads Many byways have steep grades, can be narrow and windy, and often closed in the winter because of snow 	T11-23
	 Montana's legislature passed a law in 1999 that created Montana's scenic/historic byways program. The Beartooth Highway from eight miles south of Red Lodge to Colter Pass is designated a National Scenic Byway, also known as an All-American Road Introduce, model, practice and discuss Note: See Module 7 for details on good habits for passing 	T11-25
PASSING AND BEING PASSED Two-lane Roads	Low traction, inadequate lighting, narrow roads, and high speeds are examples of possible hazards when passing on two-lane rural roadways Passing on two-lane rural roads can be very risky Risk vs. Gain Consider passing if these questions can be answered with a "yes" Is it necessary? Is it legal? Is it safe? Is it worth the risk?	T11-26
◆ No Passing Zones	 Note: See Module 7 "Passing Laws" No-passing zones help improve safety on county roads Curves, hills, other visual limitations, and safety hazards, are important reasons why traffic engineers paint portions of county roads with double-yellow lines Drivers who ignore no-passing zones are risky drivers who also endanger the lives of their passengers and the innocent occupants of the vehicles ahead that may not be able to see oncoming vehicles 	T11-27
◆ Deciding to Pass	Before passing on a two lane rural road, know the answers to these questions: How wide is the road? Are there wide shoulders? Paved or gravel? What other possible risks might be encountered on rural roadways? (Intersections, curves, hills, railroad crossings, bridges, underpasses, no-passing zones, limited visibility due to snow, rain, fog, dust and other severe weather) How far away and what is the speed of the oncoming vehicle? Is the driver ahead staying within the speed limit? Are there driveways and intersections where vehicles may be hidden? Is a vehicle ahead preparing to turn left in your planned path of travel?	T11-29

Resources









No-passing zones help improve safety
 Double-yellow lines are painted in locations with visual limitations

Ignoring no-passing zones can risk the lives of your passengers and innocent occupants of the vehicle ahead that may not be able to see

Deciding to Pass

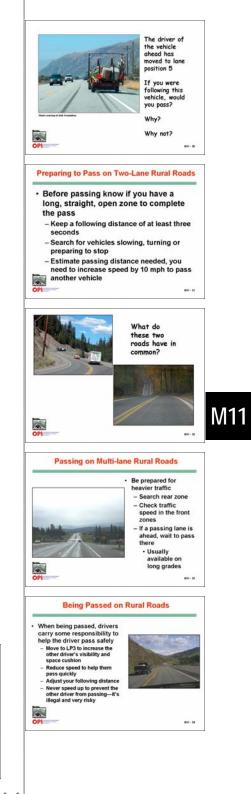
Before passing, know the answer to these questions:

- What is the road widthAre there shoulders?
- Are there LOS/POT restrictionsHow far away is the oncoming vehicle?
- Is the oncoming driver driving within the speed limit? Is the vehicle turning left?

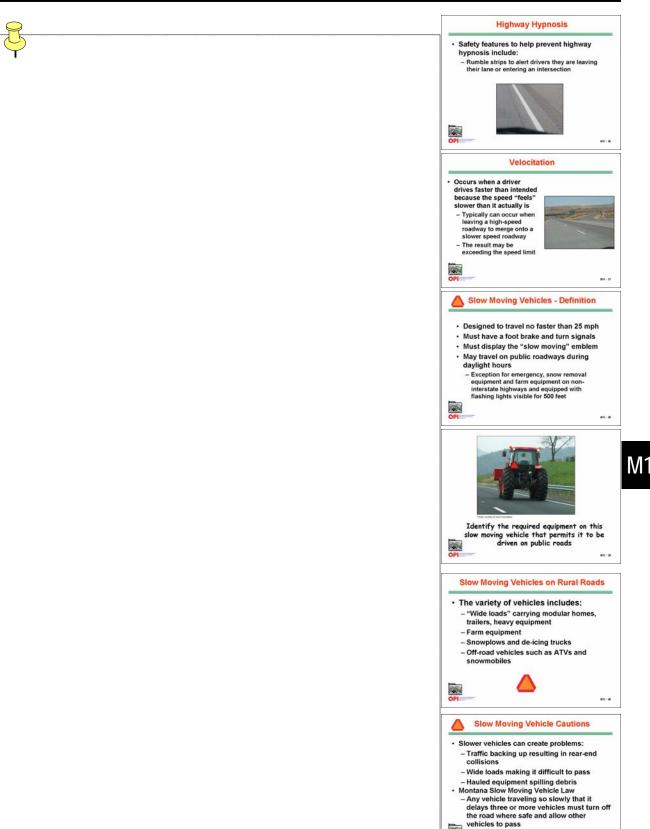
 Are there hidden driveways or intersections?

Instructional Topic	Content	Slide
Preparing to Pass	Pass only where there is a long, straight open zone Keep a following distance of at least three seconds behind the vehicle to be passed	T11-30
	 Do not initiate the pass unless there is a clear open front zone Search for vehicles going slowly, turning, or preparing to stop Slow moving vehicles could mean the driver is searching for a location and could change speed or direction quickly Look for turn signals or wheels turned to indicate the driver will be turning left, closing the front zone Is the vehicle going the speed limit? 	T11-31
	If yes, passing will require an increase in speed of 5-10 mph—exceeding the speed limit by up to 10 mph is legal for passing as long as the driver returns to the posted speed after passing; except for US Highway 93—drivers may not exceed the posted speed limit	T11-32
Passing on Multi-lane Roads	 Multi-lane roads may have heavier traffic Search the rear zones for other drivers signaling or making a passing maneuver Someone else may be moving into the lane you want to use Check traffic in the front zones Sometimes drivers drive too slowly in the left lane, causing others to use the right lane for passing—pass with caution Some two-lane roads have special passing lanes to enable drivers to pass slower moving vehicles The lane markings identify the direction of traffic permitted to use the passing lane These are usually present on long uphill grades 	T11-33
◆ Being Passed	Being passed on narrow two-lane roads carries some responsibility To assist someone wanting to pass: Move to lane position three to increase their visibility and space cushion Reduce speed to help them pass quickly Adjust speed for proper following distance whether the driver passes or not Do NOT speed up to prevent the other driver from passing—it's illegal and risky	T11-34
HIGHWAY HYPNOSIS	Introduce, model, practice and discuss Driving at a constant speed on a road with little traffic can contribute to fatigue, boredom, or just getting accustomed to the speed	T11-35
	 Highway Hypnosis definition: To become hypnotized, or go into a dreamlike state The past few seconds of driving can't be remembered Hypnosis can occur when driving long distances with little traffic on the road The road tends to be straight and boring Describe Montana roads known to meet this criteria Prevent these situations by staying well rested, and taking needed rest breaks 	



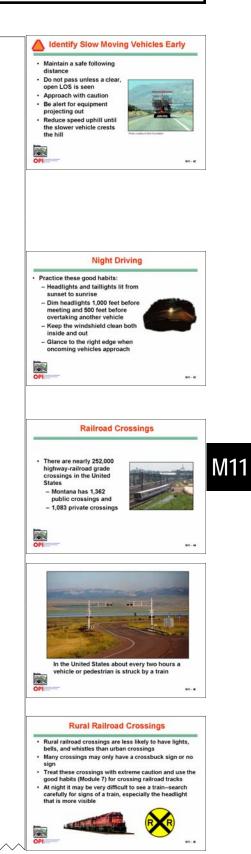


Instructional Topic	Content	Slide
HIGHWAY HYPNOSIS (Cont.)	Some roadways have rumble strips to alert drivers when their vehicle is leaving the path of travel Some rural intersections have rumble strips as you approach the intersection	T11-36
◆ Velocitation	 Velocitation definition: From the word velocity Unconsciously driving faster than intended The speed "feels" slower than it actually is When leaving a higher speed roadway to enter a slower speed roadway, drivers may feel as though they are going slow even though they are exceeding the speed limit Drivers risk getting a speeding ticket 	T11-37
SLOW MOVING VEHICLES Situation Analysis	Introduce, model, practice and discuss A 48-year-old father of three was driving a tractor pulling a hay baler when a car hit the tractor as it was trying to make a left turn. The driver of the automobile was attempting to pass the tractor when the crash occurred. The automobile driver was treated and released from the hospital. The driver of the tractor was pronounced	
Allalysis	dead at the scene by the county coroner. How could this situation have been avoided?	
 Slow Moving Vehicles in Rural Areas 	 Slow moving vehicles are designed to travel no faster than 25 mph; some can move faster All slow-moving vehicles must have a foot brake and turn signals and must display the approved emblem for slow-moving vehicles Slow moving vehicles may travel upon public highways during daylight hours 	T11-38
	only, except for emergency and snow removal and farm equipment operated on non-interstate highways and equipped with flashing lights visible for 500 feet There are a variety of slow moving vehicles traveling on rural roads "Wide Load" vehicles carrying homes, trailers, heavy equipment Farm equipment; combines, tractors, harvesters, towing equipment Snowplows or de-icing trucks Off-road vehicles (ATV's and snowmobiles)	T11-39
◆ Cautions	 Slow moving vehicles can create problems Traffic can be backed up behind the vehicle resulting in rear end crashes Most slow moving vehicles are wide or have equipment that projects out to the sides, making passing difficult It is difficult to see around them The load they are hauling could spill debris 	T11-41



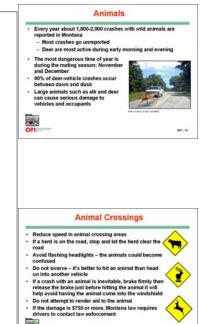
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 Slow moving vehicles law: MCA 61-8-311 Section two "Turning out of slow moving vehicles" Any vehicle traveling so slowly that it is delaying three or more other vehicles in a rural area or on a two-lane highway must turn off the road wherever safe to let the other vehicles pass Slow moving tractors pulling equipment have lights on the tractor, but the equipment could protrude creating a hazard Identify slow moving vehicles early Maintain a safe following distance Do not attempt to pass unless a clear LOS is seen Approach with caution Attached equipment may project out further than predicted Pass slowly and carefully Be aware of slower moving vehicles while driving up and down hills Reduce speed approaching a vehicle going uphill until the slower vehicle crests the hill 	T11-42
 Introduce, model, practice and discuss Rural roads often are not well lit by other vehicles, street lights or building lights Headlights and taillights must be lit from sunset to sunrise and when visibility is poor and when there is not sufficient light to clearly see persons and vehicles on the highway at a distance of five hundred (500) feet ahead Headlights must be dimmed 1,000 feet before meeting and 500 feet before overtaking another vehicle When lights are needed for driving, use headlights, not parking lights Keep the windshield clean both inside and out, to prevent glare Do not look directly at the oncoming headlights Glance to the right edge of the roadway or fog line to help maintain lane position 	T11-43
 Introduce, model, practice and discuss There are nearly 252,000 railroad crossings in Montana Montana has 2,445 public and private railroad crossings Approximately every two hours in the United States, either a vehicle or a pedestrian is struck by a train—that's 12 incidents each day! Rural railroad crossings are less likely to have lights, bells, and whistles than the urban areas Many crossings may only have the crossbuck sign or no signs Treat these crossings with extreme caution and use the good habits (Module 7) for crossing railroad tracks 	T11-44 T11-45 T11-46
	Slow moving vehicles law: MCA 61-8-311 Section two "Turning out of slow moving vehicles" Any vehicle traveling so slowly that it is delaying three or more other vehicles in a rural area or on a two-lane highway must turn off the road wherever safe to let the other vehicles pass Slow moving tractors pulling equipment have lights on the tractor, but the equipment could protrude creating a hazard Identify slow moving vehicles early Maintain a safe following distance Do not attempt to pass unless a clear LOS is seen Approach with caution Attached equipment may project out further than predicted Pass slowly and carefully Be aware of slower moving vehicles while driving up and down hills Reduce speed approaching a vehicle going uphill until the slower vehicle crests the hill Introduce, model, practice and discuss Rural roads often are not well lit by other vehicles, street lights or building lights Headlights and taillights must be lit from sunset to sunrise and when visibility is poor and when there is not sufficient light to clearly see persons and vehicles on the highway at a distance of five hundred (500) feet ahead Headlights must be dimmed 1,000 feet before meeting and 500 feet before overtaking another vehicle When lights are needed for driving, use headlights, not parking lights Keep the windshield clean both inside and out, to prevent glare Do not look directly at the oncoming headlights Glance to the right edge of the roadway or fog line to help maintain lane position Introduce, model, practice and discuss There are nearly 252,000 railroad crossings in Montana Montana has 2,445 public and private railroad crossings Approximately every two hours in the United States, either a vehicle or a pedestrian is struck by a train—that's 12 incidents each day! Rural railroad crossings are less likely to have lights, bells, and whistles than the urban areas Many crossings may only have the crossbuck sign or no signs Treat these crossings with extreme caution





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ANIMALC	Introduce, model, practice and discuss	
ANIMALS	 In Montana about 1,800-2,000 wild animal crashes are reported each year Most crashes are with deer Many wild animal crashes go unreported to law enforcement Reduce risk by reducing speed and always wearing a seat belt Deer crossing and/or migration crossing 	T11-47
	 The most dangerous time of day for deer-related crashes is in the early evening and early morning—the most active time for deer 90 percent of deer-vehicle crashes occur between dawn and dusk The most dangerous time of year is during the mating season, in November and December Pay close attention to signs that warn of migratory crossing Deer, elk and other large animals can do serious damage to the vehicle 	
	 Watch for warning signs for animal crossings Reduce speed in animal crossing areas Check the rearview mirror often when in an area where large animals could be encountered A sudden stop could cause a rear-end crash Avoid high beam or flashing the headlights—the animal could become confused and move into the vehicle's path Swerving and/or sudden hard braking to miss an animal could cause loss of control of the vehicle. Crossing the centerline into oncoming traffic or hitting a solid object (tree) or having a rear-end collision may occur It's better to hit an animal than to have a head on crash with another vehicle If hitting a large animal is inevitable, use controlled braking to try to stopWhen possible reduce impact by making a glancing hit but avoid the temptation to make a swerve maneuver Do not attempt to render aid or move the injured animal Inform a law enforcement officer about the animal and report damage to the vehicle if damages are above the legal amount required by law for reporting (\$750) 	T11-48
	 Herds If a herd is encountered crossing the road, stop a distance away and let the herd complete their crossing 	









Instructional Topic	Content	Slide
ANIMALS (Cont.)	Montana Open Range Law MCA 60-7-102 through 60-7-203 "Open range" means all un-enclosed lands outside of cities, villages and herd districts, upon which cattle by custom, license, lease, or permit, are grazed or	T11-50
◆ Open Range Law	 The owner or person controlling the possession of any domestic animal running on open range does not have to keep the animal off any highway on open range, and is not liable for damage to any vehicle or for injury to any person riding in the vehicle if there is a collision between the vehicle and the animal Fences do not void the open range law 	
	 Livestock crossing areas Horses, cattle, sheep, goats, and other livestock under controlled movement over a highway or road have the right of way in Montana When meeting or overtaking any livestock herds, be careful and cooperate with the workers in charge If any livestock are injured or killed by a vehicle, the driver is required by law to report it to the owner or nearest law enforcement officer 	T11-51
ASSIGNMENT		
ASSESSMENT		

Resources



Montana Open Range Law Open range means all un-enclosed lands outside of cities, villages and herd districts, upon which cattle by custom, license, lease, or permit, are grazed or permitted to roam Fences do not void the open range law The owner is not required to keep animals off the road and is not liable for any damages or injury Animals under controlled movement in a crossing area have the right of way



